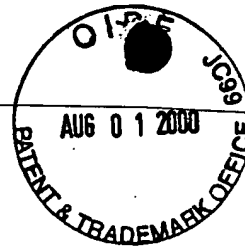


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BARTHOLOMEUSZ, ANGELINE I
AYE, THEIN T
DEMAN, ROBERT A

<120> VIRAL VARIANTS AND METHODS FOR DETECTING SAME

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<140> 09/306,420

<141> 1999-05-06

<150> PCT/AU97/00520

<151> 1997-08-15

<150> PO3519

<151> 1996-11-08

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Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr	
1 5 10 15	
cat att cct ctt cat cct gct gct atg cct cat ctt ctt att ggt tct	96
His Ile Pro Leu His Pro Ala Ala Met Pro His Leu Leu Ile Gly Ser	
20 25 30	
tct gga tta tca agg tat gtt gcc cgt ttg tcc tct aat tcc agg atc	144
Ser Gly Leu Ser Arg Tyr Val Ala Arg Leu Ser Ser Asn Ser Arg Ile	
35 40 45	
aac aac aac atg caa aac ctg cac gac tcc tgc tca agg caa ctc tac	192
Asn Asn Asn Met Gln Asn Leu His Asp Ser Cys Ser Arg Gln Leu Tyr	
50 55 60	
gtt tcc ctc atg ttg ctg tac aaa acc tac gga gag aaa ttg cac ctg	240
Val Ser Leu Met Leu Leu Tyr Lys Thr Tyr Gly Glu Lys Leu His Leu	
65 70 75 80	
tat tcc cat ccc atc gtc ctg ggc ttt cgc aaa ata cct atg gga gtg	288
Tyr Ser His Pro Ile Val Leu Gly Phe Arg Lys Ile Pro Met Gly Val	
85 90 95	
ggc ctc agt ccg ttt ctc ttg gct cag ttt act agt gcc att tgt tca	336
Gly Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Cys Ser	
100 105 110	
gtg gtt cgt agg gct ttc ccc cac tgt ttg gct ttc agc tat atg gat	384
Val Val Arg Arg Ala Phe Pro His Cys Leu Ala Phe Ser Tyr Met Asp	
115 120 125	
gat gtg gta ttg ggg gcc aag tct gta cag cat cgt gag gcc ctt tat	432
Asp Val Val Leu Gly Ala Lys Ser Val Gln His Arg Glu Ala Leu Tyr	
130 135 140	
acc gct gtt acc aat ttt ctt ttg tct ctg ggt ata cat tta aac cct	480
Thr Ala Val Thr Asn Phe Leu Leu Ser Leu Gly Ile His Leu Asn Pro	
145 150 155 160	
aac aaa aca aaa aga tgg ggt tat tcc cta aac ttc atg ggt tac ata	528
Asn Lys Thr Lys Arg Trp Gly Tyr Ser Leu Asn Phe Met Gly Tyr Ile	
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Ile Gly Ser Trp Gly Thr Leu	
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Ser Gly Leu Ser Arg Tyr Val Ala Arg Leu Ser Ser Asn Ser Arg Ile
35 40 45
Asn Asn Asn Met Gln Asn Leu His Asp Ser Cys Ser Arg Gln Leu Tyr
50 55 60
Val Ser Leu Met Leu Leu Tyr Lys Thr Tyr Gly Glu Lys Leu His Leu
65 70 75 80
Tyr Ser His Pro Ile Val Leu Gly Phe Arg Lys Ile Pro Met Gly Val
85 90 95
Gly Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Cys Ser
100 105 110
Val Val Arg Arg Ala Phe Pro His Cys Leu Ala Phe Ser Tyr Met Asp
115 120 125
Asp Val Val Leu Gly Ala Lys Ser Val Gln His Arg Glu Ala Leu Tyr
130 135 140
Thr Ala Val Thr Asn Phe Leu Leu Ser Leu Gly Ile His Leu Asn Pro
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Leu Pro Ile Cys Pro Gly Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile

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10

15

ata ttc ctc ttc atc ctg ctg cta tgc ctc atc ttc tta ttg gtt ctt 97

Ile Phe Leu Phe Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu Val Leu

20

25

30

ctg gat tat caa ggt atg ttg ccc gtt tgt cct cta att cca gga tca 145

Leu Asp Tyr Gln Gly Met Leu Pro Val Cys Pro Leu Ile Pro Gly Ser

35

40

45

aca aca aca tgc aaa acc tgc acg act cct gct caa ggc aac tct acg 193

Thr Thr Thr Cys Lys Thr Cys Thr Thr Pro Ala Gln Gly Asn Ser Thr

50

55

60

ttt ccc tca tgt tgc tgt aca aaa cct acg gag aga aat tgc acc tgt 241

Phe Pro Ser Cys Cys Cys Thr Lys Pro Thr Glu Arg Asn Cys Thr Cys

65

70

75

80

att ccc atc cca tcg tcc tgg gct ttc gca aaa tac cta tgg gag tgg 289

Ile Pro Ile Pro Ser Ser Trp Ala Phe Ala Lys Tyr Leu Trp Glu Trp

85

90

95

gcc tca gtc cgt ttc tct tgg ctc agt tta cta gtg cca ttt gtt cag 337

Ala Ser Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln

100

105

110

tgg ttc gta ggg ctt tcc ccc act gtt tgg ctt tca gct ata tgg atg 385

Trp Phe Val Gly Leu Ser Pro Thr Val Trp Leu Ser Ala Ile Trp Met

115

120

125

atg tgg tat tgg ggg cca agt ctg tac agc atc gtg agg ccc ttt ata 433

Met Trp Tyr Trp Gly Pro Ser Leu Tyr Ser Ile Val Arg Pro Phe Ile

130

135

140

ccg ctg tta cca att ttc ttt tgt ctc tgg gta tac att taa acc cta 481

Pro Leu Leu Pro Ile Phe Phe Cys Leu Trp Val Tyr Ile Thr Leu

145

150

155

aca aaa caa aaa gat ggg gtt att ccc taa act tca tgg gtt aca taa 529

Thr Lys Gln Lys Asp Gly Val Ile Pro Thr Ser Trp Val Thr

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170

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 20 25 30
 Leu Asp Tyr Gln Gly Met Leu Pro Val Cys Pro Leu Ile Pro Gly Ser
 35 40 45
 Thr Thr Thr Cys Lys Thr Cys Thr Thr Pro Ala Gln Gly Asn Ser Thr
 50 55 60
 Phe Pro Ser Cys Cys Cys Thr Lys Pro Thr Glu Arg Asn Cys Thr Cys
 65 70 75 80
 Ile Pro Ile Pro Ser Ser Trp Ala Phe Ala Lys Tyr Leu Trp Glu Trp
 85 90 95
 Ala Ser Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln
 100 105 110
 Trp Phe Val Gly Leu Ser Pro Thr Val Trp Leu Ser Ala Ile Trp Met
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 Thr Leu Thr Lys Gln Lys Asp Gly Val Ile Pro
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Leu Glu Val Gly Glu His Cys
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 Gly Leu Xaa Arg Tyr Val Ala Arg Leu Ser Ser Xaa Ser Xaa Xaa Xaa
 35 40 45
 Asn Xaa Gln Xaa Xaa Xaa Xaa Xaa Xaa Leu His Xaa Xaa Cys Ser Arg
 50 55 60
 Xaa Leu Tyr Val Ser Leu Xaa Leu Leu Tyr Xaa Thr Xaa Gly Xaa Lys
 65 70 75 80
 Leu His Leu Xaa Xaa His Pro Ile Xaa Leu Gly Phe Arg Lys Xaa Pro
 85 90 95
 Met Gly Xaa Gly Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala
 100 105 110
 Ile Xaa Xaa Xaa Xaa Xaa Xaa Arg Ala Phe Xaa His Cys Xaa Xaa Phe Xaa
 115 120 125
 Tyr Met Asp Asp Xaa Val Leu Gly Ala Xaa Xaa Xaa Xaa His Xaa Glu
 130 135 140
 Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Leu Xaa Xaa Gly Ile His
 145 150 155 160
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 Gly Tyr Xaa Ile Gly
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Ala

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Gln Thr Phe Gly Arg Lys Leu His Leu Tyr Ser His Pro Ile Ile Leu
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Gly Phe Arg Lys Ile Pro Met Gly Leu Gly Leu Ser Leu Phe Leu Met
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Ala Gln Phe Thr Ser Ala Ile Cys Ser
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20 25 30

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35 40

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Gly Leu Arg Lys Ile Pro Met Gly Val Gly Leu Ser Pro Phe Leu Met
20 25 30

Ala Gln Phe Thr Ser Ala Ile Cys Ser
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Ala Gln Phe Thr Ser Ala Leu Cys Ser
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<223> Xaa = Ile or Leu

<220>
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<222> (15)
<223> Xaa = Val or Gly

<400> 41
Xaa His Pro Ile Xaa Leu Gly Phe Arg Lys Xaa Pro Met Gly Xaa Gly
1 5 10 15

Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Cys Ser
20 25 30

<210> 42
<211> 40
<212> PRT
<213> Hepatitis B virus

<220>
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<222> (1)
<223> Xaa = Gln or Lys

<220>
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<222> (3)
<223> Xaa = Tyr or Phe

<220>
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<223> Xaa = Arg or Trp or Glu

<220>
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<222> (10)
<223> Xaa = Tyr or Leu

<220>
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<223> Xaa = Ser or Ala

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<223> Xaa = Ile or Val

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<223> Xaa = Phe or Leu

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<222> (21)
<223> Xaa = Ile or Leu

<220>
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<222> (25)
<223> Xaa = Leu or Val or Glu

<220>
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<222> (29)
<223> Xaa = Pro or Leu

<220>
<221> VARIANT
<222> (32)
<223> Xaa = Leu or Met

<220>
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<222> (39)
<223> Xaa = Ile or Leu

<220>

<221> VARIANT

<222> (40)

<223> Xaa = Cys or Leu

<400> 42

Xaa Thr Xaa Gly Xaa Lys Leu His Leu Xaa Xaa His Pro Ile Xaa Leu
1 5 10 15

Gly Xaa Arg Lys Xaa Pro Met Gly Xaa Gly Leu Ser Xaa Phe Leu Xaa
20 25 30

Ala Gln Phe Thr Ser Ala Xaa Xaa
35 40

<210> 43

<211> 14

<212> PRT

<213> Hepatitis B virus

<220>

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<222> (1)

<223> Xaa = Ala or Val

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<223> Xaa = Ser or Ala

<220>

<221> VARIANT

<222> (5)

<223> Xaa = Met or Ile or Val

<220>

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<222> (8)

<223> Xaa = Val or Leu or Met

<220>

<221> VARIANT

<222> (13)

<223> Xaa = Lys or Arg

<220>

<221> VARIANT

<222> (14)

<223> Xaa = Ser or Thr

<400> 43

Xaa Phe Xaa Tyr Xaa Asp Asp Xaa Val Leu Gly Ala Xaa Xaa
1 5 10

<210> 44
<211> 31
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<213> Hepatitis B virus

<220>
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<223> Xaa = Ile or Val

<220>
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<223> Xaa = Ile or Leu

<220>
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<222> (15)
<223> Xaa = Val or Gly

<220>
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<222> (30)
<223> Xaa = Cys or Leu

<400> 44
Xaa His Pro Ile Xaa Leu Gly Phe Arg Lys Xaa Pro Met Gly Xaa Gly
1 5 10 15

Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Xaa Ser
20 25 30

<210> 45
<211> 14
<212> PRT
<213> Hepatitis B virus

<220>
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<222> (3)
<223> Xaa = Ser or Ala

<220>

<221> VARIANT
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<223> Xaa = Val or Leu or Met

<220>
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<223> Xaa = Lys or Arg

<220>
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<223> Xaa = Ser or Thr

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1 5 10

<210> 46
<211> 11
<212> PRT
<213> Hepatitis B virus

<400> 46
Ala Phe Ser Tyr Met Asp Asp Val Val Leu Gly
1 5 10

<210> 47
<211> 11
<212> PRT
<213> Hepatitis B virus

<400> 47
Ala Phe Ser Tyr Met Asp Asp Val Val Leu Gly
1 5 10

<210> 48
<211> 11
<212> PRT
<213> Hepatitis B virus

<220>
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<223> Xaa = Val or Ile

<400> 48
Ala Phe Ser Tyr Xaa Asp Asp Val Val Leu Gly
1 5 10

<210> 49
<211> 11
<212> PRT
<213> Hepatitis B virus

<400> 49
Ala Phe Ser Tyr Met Asp Asp Val Val Leu Gly
1 5 10

<210> 50
<211> 16
<212> PRT
<213> Hepatitis B virus

<400> 50
Ser Asp Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr His
1 5 10 15

<210> 51
<211> 16
<212> PRT
<213> Hepatitis B virus

<400> 51
Ser Asp Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr His
1 5 10 15

<210> 52
<211> 16
<212> PRT
<213> Hepatitis B virus

<400> 52
Thr Asp Leu Gln Trp Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr His
1 5 10 15

<210> 53
<211> 16
<212> PRT
<213> Hepatitis B virus

<400> 53
Lys Lys Lys Ser Val Thr Val Leu Asp Val Gly Asp Ala Tyr Phe Ser
1 5 10 15

<210> 54

<211> 41
<212> PRT
<213> Hepatitis B virus

<400> 54
Gln Thr Phe Gly Arg Lys Leu His Leu Tyr Ser His Pro Ile Ile Leu
1 5 10 15
Gly Phe Arg Lys Ile Pro Met Gly Val Gly Leu Ser Pro Phe Leu Leu
20 25 30
Ala Gln Phe Thr Ser Ala Ile Cys Ser
35 40

<210> 55
<211> 41
<212> PRT
<213> Hepatitis B virus

<400> 55
Gln Thr Phe Gly Arg Lys Leu His Leu Tyr Ser His Pro Ile Ile Leu
1 5 10 15
Gly Phe Arg Lys Ile Pro Met Gly Leu Gly Leu Ser Leu Phe Leu Met
20 25 30
Ala Gln Phe Thr Ser Ala Ile Cys Ser
35 40

<210> 56
<211> 41
<212> PRT
<213> Hepatitis B virus

<400> 56
Lys Thr Tyr Gly Arg Lys Leu His Leu Leu Ala His Pro Phe Ile Met
1 5 10 15
Gly Phe Arg Lys Leu Phe Met Gly Val Gly Leu Ser Pro Phe Leu Leu
20 25 30
Ala Gln Phe Thr Ser Ala Leu Ala Ser
35 40

<210> 57
<211> 27
<212> PRT
<213> Hepatitis B virus

<400> 57
Arg Tyr Gln Tyr Asn Val Leu Pro Gln Gly Trp Lys Gly Ser Pro Ala

1

5

10

15

Ile Phe Gln Ser Ser Met Thr Lys Ile Leu Glu
20 25

B1
cncd